Revealing the mechanism of the Deep X-ray Minimum

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The multi-wavelength observing campaign of the colliding wind binary system η Car, targeted at its periastron passage in 2003 presented a detailed view of the flux and spectral variations of the X-ray minimum phase. The X-ray spectra showed a strange Fe K line profile, without significantly varying the hard band slope above 7 keV. The result, combined with 3D modeling studies, suggests that the X-ray minimum originates from either an eclipse of most of the emission by a porous absorber or a large change of the plasma emissivity.

The key to solve this problem is in the deep X-ray minimum. We therefore launched another focused observing campaign of η Car with the Chandra, XMM-Newton and Suzaku observatories during the 2009 periastron passage, concentrating on the deep minimum phase discovered in 2003. We discuss the observed spectral variation to understand the mechanism of the X-ray minimum.